



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,471	09/28/2004	Peter-Michael Merbach	20822/0205156-US0	2207

7278 7590 01/08/2008
DARBY & DARBY P.C.
P.O. BOX 770
Church Street Station
New York, NY 10008-0770

EXAMINER

LEMMA, SAMSON B

ART UNIT	PAPER NUMBER
----------	--------------

2132

MAIL DATE	DELIVERY MODE
-----------	---------------

01/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,471	Applicant(s) MERBACH ET AL.	
	Examiner Samson B. Lemma	Art Unit 2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09/04 & 08/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. **Claims 21-41** have been examined.

PRELIMINARY AMENDMENT

2. The preliminary amendment filed on 09/28/2004 has been considered; claims 1-20 have been canceled and new claims **21-41** have been requested to be considered. Accordingly the new **claims 21-41** have been examined / pending.

Claim Rejections - 35 USC § 112

3. Regarding claim 30, the phrase "wavelengths **about 808nm to 835nm**" renders the claim indefinite because the word "about" does not clearly indicate the range of the wavelengths. On paragraph 0034 of the applicant's published specification, the following has been recited, "In contrast, in case of illuminating the objects using light of a wavelength of about 835 nm, no difference is detectable between a vital and a non-vital object." Even in view of this recitation, it is still vague to determine whether or not other wavelength's such as 800nm or 900nm could satisfy the claim limitation.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2132

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 21, 22-26 and 33-41** are rejected under 35 U.S.C. 102(b) as being anticipated by **Annoff Marius** (hereinafter refereed as **Marius**) (European patent No. DE10123561 A1) (Published on October 18, 2001; submitted with IDS) (See reference U, for the equivalent computer translated English version)
6. **As per independent claim 21 and dependent claim 22-26 Marius discloses a method for recognition of biometric data** [See abstract, "biometric characteristics of fingertips"]: **comprising**
- **illuminating an object** [figure 1a, ref. Num "1"/finger] **using a light source** [Figure 1a, ref. Num "4" and figure 1d, ref. Num "4 & 8"];
 - **Simultaneously acquiring a plurality of images of the object from at least two different imaging directions** [Figure 1a, ref. Num "2" and "3"; see abstract, "fingertip can be analyzed from different perspectives.."] **using optical scanning** [figure 1a, optical scanners use optics to gather finger images. The optics are part of the camera system that captures reflected light from light source, normally through prism. To get an optical fingerprint image, the device will have: platen: used for presenting the finger; Prism: used for reflecting the lighted image to the camera; light source: used to illuminate the fingerprint. This is normally a grid of light-emitting diodes (LEDs); And camera used to capture the finger images. All these features are included in this reference see at least figures 1a and 1b);

Art Unit: 2132

- **Acquiring numerical data for each of at least two of the plurality of images using digital image processing ; calculating a three-dimensional model of the object from the numerical data of each of the at least two images** [*“title, “Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images”*];
- **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from the reference model within a predetermined tolerance** [*See title and on page 2, paragraph 6, the following has been disclosed. “the present method can be used in all areas of life in which a person identification of emergencies is helpful or furthermore and can replace conventional method for the identification or verification of persons. And at end of this paragraph the following has been disclosed, the biometric method introduced here can be used for Entrance control systems to doors or buildings, computer access authorization or system to the authenticating ...” And all these access control systems mentioned in the above paragraphs, includes comparison with reference model with a predetermined tolerance to identify and recognize/authenticate and authorized the subject/object/person for a particular purposes*]

Art Unit: 2132

7. **As per claim 33** Marius discloses a method for recognition of biometric data as applied to claims above. Furthermore Marius discloses the method wherein the plurality of other images are acquired by skewing the object stepwise around an axis running through the object and wherein at least two of the plurality of other images are saved in several discrete situations respectively and are joined together to at least one three-dimensional model reference model. [*"title, "Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images"*]

8. **As per claim 34** Marius discloses a method for recognition of biometric data as applied to claims above. Furthermore Marius discloses the method wherein a plurality of light source [*figure 1d, ref. Num "4 & 8"*] are switched in a pulse-coded manner and, synchronously, an analysis of the signal is performed using an image receiver array. (*figure 1a-1d; 2a-2b and figure 3*)

9. **As per claims 35-39** Marius discloses an apparatus for carrying out the method according to claims above. Furthermore Marius discloses the apparatus comprising: at least one illumination device configured to emit at least one of a visible and an infrared light [*Figure 1c, ref. Num "4"*]; and at least two light detectors configured to acquire independent images [*Figure 1c, ref. Num "2" & "3"; see also figure 1d; figure 2a, 2b and figure 3*].

10. **As per claim 40** Marius discloses an apparatus for carrying out the method according to claims above. Furthermore Marius discloses the apparatus wherein the plurality of light detectors are part of an electronic camera and wherein several images are acquired by the camera from different directions and are merged using beam-combining optical elements. [*figure 1c-1d; figure 2a-2b; figure 3*]

Art Unit: 2132

11. As per claim 41 Marius discloses an apparatus for carrying out the method according to claims above. Furthermore Marius discloses the apparatus wherein the plurality of light wherein for punctual illumination, the at least two light sources [Figure 1d, ref. Num "4" and "8"] are disposed as an independent module[Figure 1d].

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claim 27** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Annoff Marius** (hereinafter refereed as **Marius**) (European patent No. DE10123561) (Published on October 18, 2001) (Published on October 18, 2001; submitted with IDS) (See reference U, for the equivalent computer translated English version) in view of **Bolle et al** (hereinafter refereed as **Bolle**) (U.S. Publication No. 2004/0042642) (filed on September 3, 2003) (Continuation of application No. 09/537,077 filed on March 28, 2000)

14. **As per dependent claim 27 Marius discloses a method for recognition of biometric data [See abstract, "biometric characteristics of fingertips"]:**
comprising

Art Unit: 2132

- **illuminating an object** *[figure 1a ref. Num "1"/finger]* **using a light source** *[Figure 1a ref. Num "4" and figure 1d, ref. Num "4 & 8"];*
- **Simultaneously acquiring a plurality of images of the object from at least two different imaging directions** *[Figure 1, ref. Num "2" and "3"; see abstract, "fingertip can be analyzed from different perspectives.."]* **using optical scanning** *[figure 1a, optical scanners use optics to gather finger images. The optics are part of the camera system that captures reflected light from light source, normally through prism. To get an optical fingerprint image, the device will have: platen: used for presenting the finger; Prism: used for reflecting the lighted image to the camera; light source: used to illuminate the fingerprint. This is normally a grid of light-emitting diodes (LEDs); And camera used to capture the finger images. All these features are included in this reference see at least figures 1a and 1b);*
- **Acquiring numerical data for each of at least two of the plurality of images using digital image processing ; calculating a three-dimensional model of the object from the numerical data of each of the at least two images** *["title, "Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images"];*
- **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from the reference model**

Art Unit: 2132

within a predetermined tolerance See title and on page 2, paragraph 6, the following has been disclosed. "the present method can be used in all areas of life in which a person identification of emergencies is helpful or furthermore and can replace conventional method for the identification or verification of persons. And at end of this paragraph the following has been disclosed, the biometric method introduced here can be used for Entrance control systems to doors or buildings, computer access authorization or system to the authenticating ..." And all these access control systems mentioned in the above paragraphs, includes comparison with reference model with a predetermined tolerance to identify and recognize/authenticate and authorized the subject/object/person for a particular purposes]

Marius does not explicitly teach the particular features that the biometric data includes at least one characteristic face of a person and wherein an ear is at least partially visible in the lateral image.

However, in the same field of endeavor, **Bolle on paragraph 0055, lines 5-17 discloses the following which meets the above feature.**

"The user 410 offers a traditional biometric 420 for authentication or identification purposes. Such a biometrics **could be a fingerprint, iris or face**. However, rather than holding the biometrics still, as in the case of fingerprints or faces, or keeping the eyes open, as in case of iris recognition, the user performs some specific action 430, $a(t)$ with the biometrics. This action is performed over time 432, from time 0 (434) to some time T (436). Hence, the action $a(t)$ is some one-dimensional function of time 430 and acts upon the traditional biometric 420. Note

Art Unit: 2132

*that this biometric is the actual biometric of user 410 and not a biometrics signal (i.e., in the case of fingerprints, it is the **three-dimensional finger with the print on it**).*"

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to add the features of biometric data including at least one characteristic face of a person as per teachings **Bolle** into the method as taught by **Marius**, for the purpose of providing a backward compatible biometrics methods such as faces for authentications is backward compatible with fingerprint databases. [See **Bolle** for instance paragraph 0018]

15. **Claims 28-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Annoff Marius** (hereinafter refereed as **Marius**)(European Patent No. DE10123561 A1) (Published on October 18, 2001; submitted with IDS) (See reference U, for the equivalent computer translated English version) in view of Einighammer et al (hereinafter referred as **Einighammer**) (US Patent Publication No. 2006/0056661 A1) (field on May 23, 2002)
16. **As per dependent claim 28 and 30 Marius discloses a method for recognition of biometric data** [See abstract, "biometric characteristics of fingertips"]: **comprising**
- **illuminating an object** [figure 1a ref. Num "1"/finger] **using a light source** [Figure 1a ref. Num "4" and figure 1d, ref. Num "4 & 8"];
 - **Simultaneously acquiring a plurality of images of the object from at least two different imaging directions** [Figure 1, ref. Num "2" and "3"; see abstract, "fingertip can be analyzed from different perspectives.."]

Art Unit: 2132

using optical scanning [figure 1a, optical scanners use optics to gather finger images. The optics are part of the camera system that captures reflected light from light source, normally through prism. To get an optical fingerprint image, the device will have: platen: used for presenting the finger; Prism: used for reflecting the lighted image to the camera; light source: used to illuminate the fingerprint. This is normally a grid of light-emitting diodes (LEDs); And camera used to capture the finger images. All these features are included in this reference see at least figures 1a and 1b);

- **Acquiring numerical data for each of at least two of the plurality of images using digital image processing ; calculating a three-dimensional model of the object from the numerical data of each of the at least two images** [“title, “Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images”];

- **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from the reference model within a predetermined tolerance**[See title and on page 2, paragraph 6, the following has been disclosed. “the present method can be used in all areas of life in which a person identification of emergencies is helpful or furthermore and can replace conventional method for the identification or verification of persons. And at end of this paragraph the following has

Art Unit: 2132

been disclosed, the biometric method introduced here can be used for Entrance control systems to doors or buildings, computer access authorization or system to the authenticating ...” And all these access control systems mentioned in the above paragraphs, includes comparison with reference model with a predetermined tolerance to identify and recognize/authenticate and authorized the subject/object/person for a particular purposes/

Marius does not explicitly teach the particular features such that at least one of the plurality of images is acquired using light of a first wavelength and at least one other of the plurality of images is acquired using light of a second wavelength different from the first wavelength used and wherein the first wavelength is 678 nm and the second wavelength is about 808 nm to 835 nm.

However, in the same field of endeavor, **Einighammer on paragraph 0007 discloses the following.**

“In order to improve the measurement result, it is furthermore provided, within the scope of the invention, that several limited spectrum ranges are used for illuminating the irradiation point. It is advantageous, in this connection, if light from the spectrum ranges around **600 nm and around 800 nm** is used for illuminating the irradiation point, since a great absorption jump in the hemoglobin as well as an absorption drop in the skin pigment melanin can be detected **between these wavelengths**, and furthermore, the varying oxygen saturation of the skin does not have any influence on the measurement.”

Art Unit: 2132

Furthermore on paragraph 0014-0015, **Einighammer** further discloses the following which meets the above limitation.

“To determine the scatter function, it is advantageous if several light sources are arranged in the illumination ring, which emit light at different wavelengths. In this connection, it is advantageous if the number of light sources is correlated with a wavelength having the scatter and absorption capacity (scatter function) of the skin at this wavelength, so that light having a wavelength the scatter function of which leads to a greater attenuation of the intensity at the given distance, is irradiated in at the irradiation point, by way of the illumination ring having an averaged irradiation intensity, in order to thereby obtain a sufficient measurement signal, which is comparable with the measurement signals of other wavelengths, with regard to intensity.”[paragraph 0014]

“Two illumination rings arranged concentric to one another are provided, which **emit light of different wavelengths.**” [paragraph 0015]

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to add the features of as per teachings plurality of images is acquired using light of a one wavelength and at least one other of the plurality of images is acquired using light of another wavelength and having different wavelength into the method as per teachings of **Einighammer** into the method taught by **Marius**, for the purpose providing greater attenuation of the intensity thereby obtain sufficient measurement signal and recognize natural skin. [See **Einighammer** paragraph 0014 and abstract]

Art Unit: 2132

17. **As per dependent claim 29, 31-32 Marius discloses a method for recognition of biometric data** *[See abstract, "biometric characteristics of fingertips"]*: **comprising**
- **illuminating an object** *[figure 1a ref. Num "1"/finger]* **using a light source** *[Figure 1a ref. Num "4" and figure 1d, ref. Num "4 & 8"]*;
 - **Simultaneously acquiring a plurality of images of the object from at least two different imaging directions** *[Figure 1a ref. Num "2" and "3"; see abstract, "fingertip can be analyzed from different perspectives.."]* **using optical scanning** *[figure 1a, optical scanners use optics to gather finger images. The optics are part of the camera system that captures reflected light from light source, normally through prism. To get an optical fingerprint image, the device will have: platen: used for presenting the finger; Prism: used for reflecting the lighted image to the camera; light source: used to illuminate the fingerprint. This is normally a grid of light-emitting diodes (LEDs); And camera used to capture the finger images. All these features are included in this reference see at least figures 1a and 1b)*;
 - **Acquiring numerical data for each of at least two of the plurality of images using digital image processing ; calculating a three-dimensional model of the object from the numerical data of each of the at least two images** *["title, "Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images"]*;
 - **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of**

Art Unit: 2132

other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from the reference model within a predetermined tolerance [See title and on page 2, paragraph 6, the following has been disclosed. "the present method can be used in all areas of life in which a person identification of emergencies is helpful or furthermore and can replace conventional method for the identification or verification of persons. And at end of this paragraph the following has been disclosed, the biometric method introduced here can be used for Entrance control systems to doors or buildings, computer access authorization or system to the authenticating ..." And all these access control systems mentioned in the above paragraphs, includes comparison with reference model with a predetermined tolerance to identify and recognize/authenticate and authorized the subject/object/person for a particular purposes]

Marius does not explicitly teach the particular features such as the illuminating of the object includes directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis and wherein an intensity of the light backdiffused from the object is measured at the at least two points and compared to a reference value.

However, in the same field of endeavor, **Einighammer on figure 1-3 and 7; paragraph 0004, 0008, 0011-0012 and abstract discloses the above features.**

Art Unit: 2132

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to add the features of directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis and wherein an intensity of the light backdiffused from the object is measured at the at least two points and compared to a reference value as per teachings of **Einighammer** into the method taught by **Marius**, for the purpose of indicating a method with which the security of biometric methods for checking access authorization, can be improved to prevent attempts for deception. [See Einighammer on paragraph 0003]

18. **Independent claim 21 is also rejected under 35 U.S.C. 102(b) as being anticipated by Hawkes (hereinafter refereed as Hawkes)** (European patent No. WO 01/59,708 A1, submitted with IDS) (Published on August 16, 2001)
19. **As per independent claim 21 Hawkes discloses a method for recognition of biometric data comprising:**
- **illuminating an object** *[page 8, line 26, "real object O"]* **using a light source Simultaneously acquiring a plurality of images of the object***[page 3, line 25, "acquiring a plurality of optical images of an object"]* **from at least two different imaging directions using optical scanning** *[figure 1a, ref. Num "c1 and c2", "page 8, lines 25-26, optical cameras c1 and c2]*
 - **Acquiring numerical data for each of at least two of the plurality of images using digital image processing ; calculating a three-dimensional model of the object from the numerical data of**

Art Unit: 2132

each of the at least two images [*Abstract, on page 1, lines 3-4, see "the present invention relates to a method for the registration of two or more two dimensional optical images to a three dimensional surface model" and on page 3, line 26; see , "acquiring a three dimensional surface representation of the object"*]

- **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from the reference model within a predetermined tolerance** [page 3, lines 27- page 4, line 2]

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.(See PTO-Form 892).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samson B Lemma whose telephone number is 571-272-3806. The examiner can normally be reached on Monday-Friday (8:00 am---4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BARRON JR GILBERTO can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 703-873-8300.

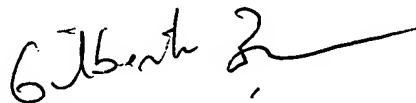
Art Unit: 2132

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAMSON LEMMA

S.L.

12/10/2007



GILBERTO BARRON JR
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100